Mr. Scott Starbuck
Woodruff Corporation
400 Industrial Parkway
Richmond, IN 47374

Dear Mr. Starbuck:

Re: Exempt Construction and Operation Status,
177-15159-00102

The application from Woodruff Corporation, received on November 15, 2001, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-1.1-3, it has been determined that the following emission units, to be located at 400 Industrial Parkway, Richmond, Indiana, 47374, is classified as exempt from air pollution permit requirements:

(a) Three (3) screen printers, identified as Printers # 1, # 2, and # 3, each with a maximum capacity of 7 sheets/min, exhausting to Stacks # 1, 2, and 3.

(b) Two (2) U. V. dryers, of unknown capacity.

(c) One (1) cold cleaning operation for washing the screens, using Easisolve 51 and Easisolve 701 solvents, at the rate of 0.10 lb/hr and 0.5 lb/hr, respectively, exhausting to Stack # 4.

The following conditions shall be applicable:

(1) Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following:

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuos opacity monitor in a six (6) hour period.

(2) Pursuant to 326 IAC 6-3-2 (Process Operations), the particulate matter (PM) from the printing operation shall be limited by the following:

Interpolation and extrapolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

(3) Any change or modification which may increase the actual emissions of VOC to fifteen (15) pounds per day from this source shall require approval from IDEM, OAQ, prior to making the change.

(4) Records shall be maintained for HAP usage. Any change or modification which may increase the potential to emit of a combination of HAPs to twenty-five (25) tons per year or a single HAP to ten (10) tons per year from this source shall require approval from IDEM, OAQ, prior to making the change.

This exemption is the first air approval issued to this source.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Sincerely,

Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

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cc: File - Wayne County
Wayne County Health Department
Air Compliance - Warren Greiling
Permit Tracking - Janet Mobley
Technical Support and Modeling - Michele Boner
Compliance Data Section - Karen Nowak

# Indiana Department of Environmental Management
# Office of Air Quality

## Technical Support Document (TSD) for an Exemption

**Source Background and Description**

**Source Name:** **Woodruff Corporation**
**Source Location:** **400 Industrial Parkway, Richmond, IN 47374**
**County:** **Wayne**
**SIC Code:** **3079**
**Operation Permit No.:** **177-15159-00102**
**Permit Reviewer:** **Madhurima D. Moulik**

The Office of Air Quality (OAQ) has reviewed an application from Woodruff Corporation relating to the operation of a facility for screen printing of corrugated plastic packaging.

**Emission Units and Pollution Control Equipment**

The source consists of the following emission units and pollution control devices:

(a) Three (3) screen printers, identified as Printers # 1, # 2, and # 3, each with a maximum capacity of 7 sheets/min, exhausting to Stacks # 1, 2, and 3.

(b) Two (2) U. V. dryers, of unknown capacity.

(c) One (1) cold cleaning operation for washing the screens, using Easisolve 51 and Easisolve 701 solvents, at the rate of 0.10 lb/hr and 0.5 lb/hr, respectively, exhausting to Stack # 4.

**Enforcement Issue**

There are no enforcement actions pending.

**Stack Summary**

| Stack ID | Operation | Height (feet) | Diameter (feet) | Flow Rate (acfm) | Temperature ($^0$F) |
|---|---|---|---|---|---|
| Stack # 1 | Dryer # 1 | 30 | 1.0 | Unknown | 125 |
| Stack # 2 | Dryer # 2 | 30 | 1.0 | Unknown | 125 |
| Stack # 3 | Dryer # 3 | 30 | 1.0 | Unknown | 125 |
| Stack # 4 | Screen Wash Area | 30 | 1.0 | Unknown | 125 |

**Recommendation**

The staff recommends to the Commissioner that the construction and operation be approved. This

recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

A complete application for the purposes of this review was received on November 15, 2001.

**Emission Calculations**

See Appendix A of this document for detailed emissions calculations.

**Potential To Emit**

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, the department, or the appropriate local air pollution control agency."

| Pollutant | Potential To Emit (tons/year) |
|---|---|
| PM | Negligible |
| PM-10 | Negligible |
| $SO_2$ | Negligible |
| VOC | 8.7 |
| CO | Negligible |
| $NO_x$ | Negligible |

| HAP's | Potential To Emit (tons/year) |
|---|---|
| Xylene | 0.55 |
| Cumene | 0.23 |
| Napthalene | 0.33 |
| Ethylbenzene | 0.04 |
| TOTAL | 1.14 |

(a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of pollutants are less than the levels listed in 326 IAC 2-1.1-3(d)(1). Therefore, the source is subject to the provisions of 326 IAC 2-1.1-3.

(b) The potential to emit (as defined in 326 IAC 2-7-1(29)) of any single HAP is less than ten (10) tons per year and/or the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-1.1-3.

**County Attainment Status**

The source is located in Wayne County.

| Pollutant | Status |
|---|---|
| PM-10 | attainment |
| $SO_2$ | attainment |

| | |
|---|---|
| $NO_2$ | attainment |
| Ozone | attainment |
| CO | attainment |
| Lead | attainment |

(a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Wayne County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

(b) Wayne County has been classified as attainment or unclassifiable for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

**Source Status**

New Source PSD Definition (emissions after controls, based on 8,760 hours of operation per year at rated capacity and/ or as otherwise limited):

| Pollutant | Emissions (ton/yr) |
|---|---|
| PM | Negligible |
| PM10 | Negligible |
| $SO_2$ | Negligible |
| VOC | 8.7 |
| CO | Negligible |
| $NO_x$ | Negligible |
| Combination HAPs | 1.14 |

(a) This new source is **not** a major stationary source because no attainment pollutant is emitted at a rate of 250 tons per year or greater and it is not in one of the 28 listed source categories. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

**Part 70 Permit Determination**

326 IAC 2-7 (Part 70 Permit Program)

This new source is not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:
(a) each criteria pollutant is less than 100 tons per year,
(b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and
(c) any combination of HAPs is less than 25 tons/year.

This is the first air approval issued to this source.

**Federal Rule Applicability**

(a) The printers # 1, 2 and 3 are not subject to the requirements of the New Source Performance Standard, 326 IAC 12, 40 CFR 60.430, Subpart QQ (Standards of Performance for the Graphic Arts Industry: Publication Rotogravure Printing), because

these printers are not publication rotogravure printers.

(b) National Emissions Standards for Hazardous Air Pollutants (NESHAP) 40 CFR 63, Subpart KK (National Emission Standards for the Printing and Publishing Industry) does not apply because this printing operation is not rotogravure or flexographic, and it is not a major source of HAPs.

(c) National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR 63, Subpart T (Standards for Halogenated Solvent Cleaning), does not apply to the cold cleaning operation, because it uses sodium periodate, which is not one of the solvents listed in this rule.

**State Rule Applicability - Entire Source**

326 IAC 2-6 (Emission Reporting)

This source is located in Wayne County and the potential to emit of all pollutants is less than one hundred (100) tons per year. Therefore, 326 IAC 2-6 does not apply.

326 IAC 5-1 (Visible Emissions Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

326 IAC 6-3-2 (Process Operations)

The particulate matter (PM) from the printing operation shall be limited by the following:

Interpolation and extrapolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10 P^{0.67}$ where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

**State Rule Applicability - Individual Facilities**

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))

The printing and cleaning operation will emit less than 10 tons per year of a single HAP or 25 tons per year of a combination of HAPs. Therefore, 326 IAC 2-4.1 does not apply.

326 IAC 8-1-6 (General Provisions Relating to VOC rules: General Reduction Requirements for New Facilities)

The potential VOC emissions from the three printers will each be less than 25 tons per year, therefore, this rule will not apply.

326 IAC 8-3-2 (Organic Solvent Degreasing Operation: Cold Cleaner Operation)

326 IAC 1-2-18.5 defines cold cleaner degreaser as “tank containing organic solvent”. 326 IAC 1-2-72 defines solvent as “organic materials which are liquid at standard conditions”. The solvent used in the cold cleaning operation at this source is sodium periodate, which does not meet the definition of “organic solvent”. Therefore, 326 IAC 8-3-2 does not apply.

326 IAC 8-5-5 (Miscellaneous Operations: Graphic Arts Operations)

The printers # 1, 2, and 3 are not subject to the requirements of 326 IAC 8-5-5 (Graphic Arts operations) because the potential emissions of each are less than twenty-five (25) tons per year. No other 326 IAC 8 rules apply to the emission units at this source.

**Conclusion**

The construction and operation of this screen printing and cleaning facility shall be subject to the conditions of the attached proposed Exemption No. 177-15159-00102.

**Appendix A: Emissions Calculations**
**VOC From Printing Press Operations**
**Company Name: Woodruff Corporation**
**Address City IN Zip: 400 Industrial Parkway, Richmond, IN 47374**
**CP: 177-15159**
**Plt ID: 177-00102**
**Reviewer: Madhurima D. Moulik**
**Date: December 7, 2001**

| THROUGHPUT | | | |
|---|---|---|---|
| Press I.D. | MAXIMUM LINE SPEED (FEET/MIN) | MAXIMUM PRINT WIDTH (INCHES) | MMin^2/YEAR |
| | 33.83 | 47 | 10029 |

| INK VOCS | | | | | |
|---|---|---|---|---|---|
| Ink Name<br>Press Id | Maxium Coverage<br>'(lbs/MMin^2) | Weight % Volatiles* | Flash Off % | Throughput<br>(MMin^2/Year) | Emissions<br>(TONS/YEAR) |
| **PRINTER # 1** | | | | | |
| Screen Ink # 15 | 0.25 | 35% | 100.00% | 10029 | 0.44 |
| Thinners # 4 | 0.15 | 100% | 100.00% | 10029 | 0.75 |
| Polyall Washup | 0.4 | 100% | 100.00% | 10029 | 2.01 |
| Easisolv # 701 | 0.1 | 90% | 100.00% | 10029 | 0.45 |
| Easisolv # 5 | 0.02 | 0% | 100.00% | 10029 | 0.00 |

| **Total VOC Emissions =** | **3.65 Ton/yr** |
|---|---|

*VOC (Tons/Year) = Maximum Coverage pounds per MMin^2 * Weight % volatiles (weight % of water & organics - weight % of water = weight % organics) * Flash off * Throughput * 1 Ton per 2000 pounds

METHODOLOGY

Throughput = Maxium line speed feet per minute * Convert feet to inches * Maximum print width inches * 60 minutes per hour * 8760 hours per year = MMin^2 per Year
VOC = Maximum Coverage pounds per MMin^2 * Weight percentage volatiles (water minus organics) * Flash off * Throughput * Tons per 2000 pounds = Tons per Year
NOTE: HEAT SET OFFSET PRINTING HAS AN ASSUMED FLASH OFF OF 80%. OTHER TYPES OF PRINTERS HAVE A FLASH OFF OF 100%.
(Source -OAQPS Draft Guidance, "Control of Volatile Organic Compound Emisions from Offset Lithographic Printing (9/93) )

**Appendix A: Emissions Calculations**
**VOC From Printing Press Operation No. 2**
**Company Name: Woodruff Corporation**
**Address City IN Zip: 400 Industrial Parkway, Richmond, IN 47374**
**CP: 177-15159**
**Plt ID: 177-00102**
**Reviewer: Madhurima D. Moulik**
**Date: December 7, 2001**

| THROUGHPUT | | | |
|---|---|---|---|
| Press I.D. | MAXIMUM LINE SPEED (FEET/MIN) | MAXIMUM PRINT WIDTH (INCHES) | MMin^2/YEAR |
| PRINTER # 2 | 27.42 | 26 | 4497 |

| INK VOCS | | | | | |
|---|---|---|---|---|---|
| Ink Name<br>Press Id | Maxium Coverage<br>'(lbs/MMin^2) | Weight % Volatiles* | Flash Off % | Throughput<br>(MMin^2/Year) | Emissions<br>(TONS/YEAR) |
| **PRINTER # 2** | | | | | |
| Screen Ink # 15 | 0.25 | 35% | 100.00% | 4497 | 0.20 |
| Thinners # 4 | 0.15 | 100% | 100.00% | 4497 | 0.34 |
| Polyall Washup | 0.4 | 100% | 100.00% | 4497 | 0.90 |
| Easisolv # 701 | 0.1 | 90% | 100.00% | 4497 | 0.20 |
| Easisolv # 5 | 0.02 | 0% | 100.00% | 4497 | 0.00 |

| **Total VOC Emissions =** | **1.64 Ton/yr** |
|---|---|

*VOC (Tons/Year) = Maximum Coverage pounds per MMin^2 * Weight % volatiles (weight % of water & organics - weight % of water = weight % organics) * Flash off * Throughput * 1 Ton per 2000 pounds

METHODOLOGY

Throughput = Maxium line speed feet per minute * Convert feet to inches * Maximum print width inches * 60 minutes per hour * 8760 hours per year = MMin^2 per Year
VOC = Maximum Coverage pounds per MMin^2 * Weight percentage volatiles (water minus organics) * Flash off * Throughput * Tons per 2000 pounds = Tons per Year
NOTE: HEAT SET OFFSET PRINTING HAS AN ASSUMED FLASH OFF OF 80%. OTHER TYPES OF PRINTERS HAVE A FLASH OFF OF 100%.
(Source -OAQPS Draft Guidance, "Control of Volatile Organic Compound Emisions from Offset Lithographic Printing (9/93) )

**Appendix A: Emissions Calculations**
**VOC From Printing Press Operations # 3**

**Company Name:** **Woodruff Corporation**
**Address City IN Zip:** **400 Industrial Parkway, Richmond, IN 47374**
**CP:** **177-15159**
**Plt ID:** **177-00102**
**Reviewer:** **Madhurima D. Moulik**
**Date:** **December 7, 2001**

THROUGHPUT

| Press I.D. | MAXIMUM LINE SPEED | MAXIMUM PRINT WIDTH (INCHE | MMin^2/YEAR |
|---|---|---|---|
| PRINTER # 3 | 36.17 | 41 | 9353 |

INK VOCS

| Ink Name<br>Press Id | Maxium Coverage<br>'(lbs/MMin^2) | Weight % Volatiles* | Flash Off % | Throughput<br>(MMin^2/Year) | Emissions<br>(TONS/YEAR) |
|---|---|---|---|---|---|
| **PRINTER # 3** | | | | | |
| Screen Ink # 15 | 0.25 | 35% | 100.00% | 9353 | 0.41 |
| Thinners # 4 | 0.15 | 100% | 100.00% | 9353 | 0.70 |
| Polyall Washup | 0.4 | 100% | 100.00% | 9353 | 1.87 |
| Easisolv # 701 | 0.1 | 90% | 100.00% | 9353 | 0.42 |
| Easisolv # 5 | 0.02 | 0% | 100.00% | 9353 | 0.00 |

| **Total VOC Emissions =** | **3.41 Ton/yr** |
|---|---|

*VOC (Tons/Year) = Maximum Coverage pounds per MMin^2 * Weight % volatiles (weight % of water & organics - weight % of water = weight % organics) * Flash off * Throughput * 1 Ton per 2000 pounds

METHODOLOGY

Throughput = Maxium line speed feet per minute * Convert feet to inches * Maximum print width inches * 60 minutes per hour * 8760 hours per year = MMin^2 per Year
VOC = Maximum Coverage pounds per MMin^2 * Weight percentage volatiles (water minus organics) * Flash off * Throughput * Tons per 2000 pounds = Tons per Year
NOTE: HEAT SET OFFSET PRINTING HAS AN ASSUMED FLASH OFF OF 80%. OTHER TYPES OF PRINTERS HAVE A FLASH OFF OF 100%. printing.wb3
(Source -OAQPS Draft Guidance, "Control of Volatile Organic Compound Emisions from Offset Lithographic Printing (9/93) ) updated 11/98

**Appendix A: Emissions Calculations**
**HAP Emissions**
**Company Name: Woodruff Corporation**
**Address City IN Zip: 400 Industrial Parkway, Richmond, IN 47374**
**CP: 177-15159**
**Plt ID: 177-00102**
**Reviewer: Madhurima D. Moulik**
**Date: December 7, 2001**

| Product | Maximum Usage | Wt % Xylene | Wt. % Cumene | Wt. % Napthalene | Wt. % | Xylene | Cumene | Napthalene | Ethylbenzene | Comb. HAPs |
|---|---|---|---|---|---|---|---|---|---|---|
| | l(lb/hr) | | | | Ethylbenzene | (lb/hr) | (lb/hr) | (lb/hr) | (lb/hr) | |
| | | | | | | | | | | |
| Polyall Washup | 1.1 | 7.0 | 3.0 | 0.0 | 0.0 | 0.08 | 0.03 | 0.00 | 0.00 | |
| Thinner | 0.41 | 0.0 | 5.0 | 10.0 | 2.0 | 0.00 | 0.02 | 0.04 | 0.01 | |
| Inks | 0.68 | 7.0 | 0.0 | 5.0 | 0.0 | 0.05 | 0.00 | 0.03 | 0.00 | |
| | | | | | | | | | | |
| | | | | | Emissions (lb/hr) | 0.12 | 0.05 | 0.08 | 0.01 | 0.26 |
| | | | | **PTE in tons per Year =** | | **0.55** | **0.23** | **0.33** | **0.04** | **1.14** |

**Appendix A: Emissions Calculations**
**Total Emissions**

**Company Name:** Woodruff Corporation
**Address City IN Zip:** 400 Industrial Parkway, Richmond, IN 47374
**CP:** 177-15159
**Plt ID:** 177-00102
**Reviewer:** Madhurima D. Moulik
**Date:** December 7, 2001

| | VOC (tons/yr) | Xylene | Cumeme | Napthalene | Ethylbenzene | Comb. |
|---|---|---|---|---|---|---|
| Printer # 1 | 3.65 | | | | | HAPs |
| Printer # 2 | 1.64 | (Printer + Washup) | (Printer + Wasup) | (Printer + Washup) | Printer + Washu | |
| Printer # 3 | 3.41 | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **VOC (PTE in tons/yr) =** | **8.7** | **0.55** | **0.23** | **0.33** | **0.04** | **1.14** |